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09/921,703	08/06/2001	Takahiro Fuchigami	016907/1246	8140

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EXAMINER	
DIVINE, LUCAS	
ART UNIT	**PAPER NUMBER**
2624	

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/921,703	FUCHIGAMI ET AL.	
	Examiner	Art Unit	
	Lucas Divine	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *15-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8/6/01* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/6/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 1 – 14 and 20 are pending, claims 15 – 19 are withdrawn from consideration.

2. Applicant believes claim 1 is generic, while on page 2 of Examiner restriction mailed 3/23/05, Examiner indicated that no claims were generic.

Claim 1 is not generic to claims 15 and 18 because the discrimination data generating means uses first image data and first discrimination data, while claims 15 and 18 only use first image data.

Claim 1 is not generic to claims 16 and 19 because it includes image data generating means, while claims 16 and 19 do not include image data generating means.

Claim 1 is not generic to claims 17, 18, and 19 because it includes image development means, while claims 17, 18, and 19 do not include image development means.

Therefore claim 1 is not generic.

Drawings

3. The drawings are objected to because **data input means** is stated as block 141 (page 30 line 13) while in Fig. 22, block 141 is 'image development means'. Appropriate correction of discrepancy is required.

4. The drawings are objected to because **data input means** is stated as block 151 (page 31 line 14) while in Fig. 23, block 151 is 'image development means'. Appropriate correction of discrepancy is required.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **125, 131, 132, 133, 134, 142, 143, 144, 145, 152, 153, 154, 155, 162, 163, 164**.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **156** mentioned on page 31 line 16.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

8. Claims 1 and 20 are objected to because of the following informalities: they include the phrase "**each of pixels**" which would be better written as "*each pixel*" for example on page 34 line 5. Appropriate correction is required.

9. Claims 1 and 20 are objected to because of the following informalities: these claims include the language "**generating first image data and first discrimination data representing attributes of each of pixels of the first image data**". Examiner doesn't understand whether *both* the image data and discrimination data represent attributes or *if only* the discrimination data represents attributes. Clarification in punctuation or sentence structure is needed to make the claim specific to what that applicant is claiming.

10. Claim 13 is objected to because of the following informalities:

1) the claim states '**image generating means**' in line 2. Examiner believes that this is referring to the *image data generating means* claimed in claim 1 and that claim 13 should have the word 'data' inserted between image and generating.

2) the reading of the claim suggests that ONLY when EACH (and thus every) pixel of the color image data is associated with a character or line does data get replaced (see specifically lines 17-20 of page 37). Examiner believes from specification that examiner might have intended that *each* could have been a word such as '*a*' to indicated that when a pixel is associated with a character or line, the replacing occurs. Thus, replacing occurs individually for each pixel

that is associated with a character or line instead of only happening when all pixels are associated with a character or line. If this was applicant's intent, appropriate amendment is recommended to indicate such.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 recites the limitation "**data**" in page 37 line 21. There is insufficient antecedent basis for this limitation in the claim because many different types of data have been defined in 13 and parent claims, thus data could refer to: first image data, first discrimination data, second discrimination data, second image data, color image data, or some other type of data not defined previously. Clarification of 'data' is required to make the claim defininte.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1, 4 – 7, 11, 12, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohta et al. (6549657) hereafter as Ohta.

Regarding claim 1, Ohta teaches **an image processing apparatus** (embodiment 3 as shown in Fig. 8, note comment in col. 9 lines 32-34) **comprising:**

image development means (102) **for generating first image data** (raster-image data; col. 5 lines 9-10) **and first discrimination data** (color green data created by 102 and used for discrimination steps of CPU; col. 10 lines 20-27 – specifically line 26) **representing attributes of each of pixels of the first image data** (col. 5 lines 9-10, wherein raster-image data is created for each pixel; and wherein the green data is an attribute of each pixel) **on the basis of information described in a page description language** (conversion based on PDL data; col. 5 line 8);

discrimination data generating means (104) **for generating second discrimination data** (icode information as given as an example in Fig. 11; col. 5 lines 12-18) **different from the first discrimination data** (icode different than green pixel data), **using the first image data** (col. 10 lines 21-22, wherein discrimination corresponds to input raster image) **and the first discrimination data generated by the image development means** (color green data created by 102 and used for discrimination steps of CPU; col. 10 lines 20-27);

image data generating means (image data generating functional blocks 601, 602, 603, 604, 605 as a group act as image generating means) **for generating second image data** (correct CYMK data for printing from RGB as discussed in col. 9 line 35 - col. 10 line 55, for example RGB to CMY then K and select correct CYMK data) **by correcting the first image data**

generated by the image development means (selector 605 selects the corrected color image data based icodes [second discrimination data]; col. 10 lines 49-55) **on the basis of the second discrimination data generated by the discrimination data generating means** (icode, col. 10 lines 49-51, also shown in arrow from 105 to 605 in Fig. 8);

image processing means (image processing functional blocks 406, 407, 408, 409, 410 as a group act as image processing means) **for subjecting the second image data generated by the image data generating means** (second image data CYMK enters image processing means after selector unit 605) **to a predetermined process** (process of comparing pixel by pixel to obtain a pulse modulated signal for printing; col. 8 lines 48-62 and col. 10 lines 56-67) **on the basis of the second discrimination data generated by the discrimination data generating means** (icode, col. 10 line 61 and col. 8 lines 50-54); **and**

image output means for outputting image data processed by the image processing means (printer engine 413).

Regarding claim 4, which depends from claim 1, Ohta teaches that **the image development means generates first discrimination data that does not discriminate whether each pixel is associated with a line figure described by a straight line and a curve, or a plane figure, the entirety or each component of which is painted out with uniform density** (the first discrimination data generated by image development means 102 is the green data associated with the pixel, thus the data generated does NOT discriminate whether each pixel is associated with a line figure or plane figure).

Regarding claim 5, which depends from claim 1, Ohta further teaches **the discrimination data generating means generates second discrimination data that discriminates whether**

each pixel is associated with a line figure described by a straight line and a curve, or a plane figure, the entirety or each component of which is painted out with uniform density (col. 10 lines 23-25, wherein a pixel or area is discriminated as to be a part of a line or a grayscale image area – 'continuous grayscale' implying uniform density), **using the first image data generated by the image development means** (col. 10 line 26, wherein the CPU uses this green component discrimination data to discriminate second data).

Regarding claim 6, which depends from claim 1, Ohta further teaches **the image development means generates first discrimination data that does not discriminate between a contour portion and an inside portion of a plane figure painted out with uniform density** (the first discrimination data generated by image development means 102 is the green data associated with the pixel, thus the data generated does NOT discriminate whether each pixel is associated with a contour portion and an inside portion).

Regarding claim 7, which depends from claim 1, Ohta further teaches **the discrimination data generating means generates second discrimination data that discriminates between a contour portion and an inside portion of a plane figure painted out with uniform density** (Fig. 4 shows various pixels that are all discriminated by CPU 104, including the inside portion of a plane figure [301] and the contour portion of a plane [edge 303]), **using the first image data generated by the image development means** (col. 10 line 26, wherein the CPU uses this green component discrimination data to discriminate second data).

Regarding claim 11, which depends from claim 1, Ohta further teaches **the discrimination data generating means generates second discrimination data that discriminates the magnitude of density variation in each pixel** (iemax variable as shown in

Fig. 11 and discussed in col. 6 lines 7-21 judges the magnitude of density variation in the pixel to related pixels in order to decide whether or not the pixel is along a line/character area), **using the first image data generated by the image development means** (col. 10 line 26, wherein the CPU uses this green component discrimination data to discriminate second data).

Regarding claim 12, which depends from claim 1, Ohta teaches **the discrimination data generating means generates, when the first image data generated by the image development means is color image data comprising plural color components** (RGB data as discussed in col. 9 line 38), **second discrimination data which represents attributes of each pixel** (the discrimination shown in Fig. 11 represents the attributes for each particular pixel) **for each color component** (these attributes utilize each color component, see step S12, wherein each component RGB is used to help generate second discrimination data) **and is different from the first discrimination data** (icode information [second] is different than green component information [first]), **using the color image data** (col. 9 line 38).

Regarding claim 20, the structural elements of apparatus claim 1 perform all of the method steps of method claim 20. Therefore, method claim 20 is rejected for the same reasons as stated above in the rejection of apparatus claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta embodiment 3 as applied to claim 1 above, and further in view of Ohta embodiment 4.

Regarding claims 2 and 3, which depend from claim 1, Ohta embodiment 3 teaches that the CPU 104 discriminates whether each pixel is associated with a character, or line figure (Fig. 4 character 302, line 305; col. 10 lines 29 and 52 and previously discussed in previous embodiments).

Ohta embodiment 3 does not specifically teach that the character/line discrimination can be done outside of the CPU 104 (cited as discrimination data generating means for developing icode in claim 1).

Ohta embodiment 4 teaches the character/line discrimination can be done outside of the CPU 104 (Fig. 14, 17, and 27).

It would have been obvious to place the character/line discrimination units outside of the CPU 104 as shown in embodiment 4. The motivation for doing so would have been to have a dedicated circuit for an important task in the system, which would free up the CPU to process other tasks and thus speed up the whole system. It further would have been obvious to combine because Ohta teaches all of the implementations and combining would thus be obvious.

In the combined system, the block 1105 for character/line discrimination and the unit 102 for PDL interpretation would be considered image development means and the first discrimination data would be the TEXT output shown in Figs. 14 and 27 and the CPU 104 would take the input and generate second discrimination data (icode). Thus, the image development means would generate discrimination data based on characters/lines, while the discrimination data generating means would not.

14. Claims 8 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta embodiment 3 as applied to claim 1 above, and further in view of Uekusa et al. (2001/0013953) and Ohta embodiment 4.

Regarding claims 8 – 10, which depend from claim 1, Ohta teaches an image processing system for printing that performs image correction based on plane figure, character and line detections (see discussion of embodiment 3, specifically col. 11 lines 1-10.

Ohta does not specifically teach a system that discriminate between a plane figure and a tone image.

Uekusa teaches an image processing system (by the same assignee as Ohta) for printing including discriminating between a plane figure at and tone image (Figs. 2, 3, 8 and their associated discussions).

It would have been obvious to one of ordinary skill in the art to add a third type of object to look for in the image data, thus the tone image. The motivation for doing so would have been to perform a more proper image process (0011 and 0012) by providing image correction also on tone images. In paragraph 0008, Uekusa discusses further reasons why color correction on tone images is beneficial for producing an excellent printed output and 0005 discusses that characters/lines, graphics, and photographs all need to be corrected differently because of different qualities.

The combination above teaches generating discrimination data between a plane figure and a tone image, but the combination does not specifically teach that the discrimination could take place by the image development means.

Ohta embodiment 4 teaches the discrimination can be done outside of the CPU 104 (Fig. 14, 17, and 27).

It would have been obvious to place the discrimination units outside of the CPU 104 as shown in embodiment 4. The motivation for doing so would have been to have a dedicated circuit for an important task in the system, which would free up the CPU to process other tasks and thus speed up the whole system.

In the combined system, the block 1105 for discrimination and the unit 102 for PDL interpretation would be considered image development means and the first discrimination data would be the type of data output and the CPU 104 would take the input and generate second discrimination data (icode). Thus, the image development means would generate discrimination data based on characters/lines, tone images, and plane figures, while the discrimination data generating means would not.

15. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta as applied to claim 1 above, and further in view of Sasanuma (US 5875036).

Regarding claim 14, which depends from claim 1, Ohta teaches that in the image generating means (601, 602, 603, 604, 605 as a group act as image generating means), masking circuits are used to mask the data and select the output based on characters/lines (col. 9 line 66 – col. 10 line 14 and col. 10 lines 43 – 67 and described further in the rest of embodiment 3). Ohta teaches this masking with coefficients to produce results correct and faithful to the input image data.

Ohta does not specifically teach that the image generating units include a smoothing process based on the character/line result.

Sasanuma teaches a system much like that of Ohta including inputting data, converting it to CMYK, performing image correction, driving pulses for putout and a laser driver for final output. Further Sasanuma is assigned to the same entity as Ohta, thus implying the systems can work together.

Sasanuma teaches placing smoothing filters in the system for image correction (Fig. 4 ref. nos. 4 and 5, wherein a smooth density variation is provided, also shown in Fig. 8, Figs. 13B and 15B [and their corresponding descriptions] show the smoothing done after characters and gradation have been separated).

It would have been obvious that another type of image correction that could be placed in the system of Ohta is smoothing as taught by Sasanuma in printing devices. The motivation for doing so would have been to provide a more correct image output of character/line areas (col. 2 lines 23-28 and further throughout Sasanuma wherein smoothing helps the final output of the image be more correct and faithful to the inputted data [which is also an object of Ohta as discussed above).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas Divine whose telephone number is 571-272-7432. The examiner can normally be reached on Monday - Friday, 7:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lucas Divine
Examiner
Art Unit 2624

ljd

KING Y. POON
PRIMARY EXAMINER